भारतीय मानक **IS 14216 : 2023**

Indian Standard

मिर्च एवं मसालों की प्रसंस्करण इकाई स्वच्छता — पद्धति की रीति संहिता

(पहला पुनरीक्षण)

Spices and Condiments Processing Units – Code of Hygiene Practices

(First Revision)

ICS 67.220.10

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भारतीय मानक ब्यूरो
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May 2023 **Price Group 7**

Spices and Condiments Sectional Committee, FAD 09

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Spices and Condiments Sectional Committee had been approved by the Food and Agriculture Divisional Council.

Dried, fragrant, aromatic or pungent, edible plant substances, in the whole, broken or ground form, for example, spices and dried culinary herbs, impart flavour, aroma or colour when added to food. Spices and dried culinary herbs may include many parts of the plant, such as aril, bark, berries, buds, bulbs, leaves, rhizomes, roots, seeds, stigmas, pods, resins, fruits, or plant tops.

The production, processing, and packing of spices and dried culinary herbs are very complex. For example, source plants for spices and dried culinary herbs are grown in a wide range of areas and on many types of farms, for example from very small farms to large farms. Agricultural practices for growing source plants for spices and dried culinary herbs also vary tremendously from virtually no mechanization to highly mechanized practices. Drying of source plants may be performed mechanically (for rapid drying) or naturally (for example, slower drying under the sun for several days). The distribution and processing chain for spices and dried culinary herbs is also highly complex and can span long periods of time and include a wide range of establishments. Dried product processing generally involves cleaning (for example, culling, sorting to remove debris), grading, sometimes soaking, slicing, drying, and on occasion grinding/cracking. Some spices and dried culinary herbs are also treated to mitigate microbial contamination, typically by steam treatment, gas treatment (for example, ethylene oxide), or irradiation. Processing and packing/repacking may also take place in multiple locations over long periods of time, since spices and dried culinary herbs are prepared for different purposes.

The safety of spices and dried culinary herbs products depends on maintaining good hygienic practices along the food chain during primary production, processing, packing, retail, and at the point of consumption. Spore forming bacteria, including pathogens such as *Bacillus cereus*, *Clostridium perfringens*, and *Clostridium botulinum*, as well as non-spore forming vegetative cells of microorganisms such as *Escherichia coli*, *Staphylococcus aureus*, and *Salmonella spp*. have been found in spices and dried culinary herbs. The complex supply chain for spices and dried culinary herbs makes it difficult to identify the points in the food chain where contamination occurs, but evidence has demonstrated that contamination can occur throughout the food chain if proper practices are not followed.

The safety of spices and dried culinary herbs can also be affected by mycotoxin-producing moulds, for example, those producing aflatoxin (such as *Aspergillus flavus* or *Aspergillus parasiticus*) or ochratoxin A (such as *Aspergillus ochraceus*, *Aspergillus carbonarius*, or *Penicillium verrucosum*). Chemical hazards such as heavy metals and pesticides, as well as physical contaminants such as stones, glass, wire, extraneous matter and other objectionable material, may also be present in spices and dried culinary herbs.

This standard addresses Good Agricultural Practices (GAPs), Good Manufacturing Practices (GMPs) and Good Hygienic Practices (GHPs) that will help minimize contamination, including microbial, chemical and physical hazards, associated with all stages of the production of spices and dried culinary herbs from primary production to consumer use.

(*Continued on third cover*)

Indian Standard

SPICES AND CONDIMENTS PROCESSING UNITS — CODE OF HYGIENE PRACTICES

(First revision)

1 SCOPE

This code of hygienic practices applies to spices and condiments, whole, broken, ground or blended. It covers the minimum requirements of hygiene for growing, harvesting and post-harvest practices (for example, curing, bleaching, blanching, cutting, drying, cleaning, grading, packing, transportation and storage, including disinfestation and fumigation), processing establishments, processing technology and practices (for example, grinding, blending, freezing and freeze-drying, treatments to reduce the microbial load), packaging and storage of processed products. For spices and culinary herbs collected from the wild, only the measures for handling and post-harvest activities apply.

2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
IS 2491 : 2013	Food hygiene — General principles — Code of practice (*third Revision*)

3 DEFINITIONS

For the purpose of this standard, definitions given in IS 2491 shall apply. In addition, the following definitions are also given:

3.1 Spices and Dried Culinary Herbs — Dried plants or parts of plants (roots, rhizomes, bulbs, leaves, bark, flowers, fruits, and seeds) used in foods for flavouring, colouring, and imparting aroma. This term equally applies to whole, broken, ground and blended forms.

NOTE — Spices and dried culinary herbs may include the dried aril (for example the mace of nutmeg), bark (for example cinnamon), berries (for example black pepper), buds (for example clove), bulbs (for example dried garlic), leaves (for example dried basil), rhizomes (for example ginger, turmeric), seeds (for example mustard), stigmas (for example saffron), pods (for example vanilla), resins (for example asafoetida), fruits (for example dried chilli) or plant tops (for example dried chives).

3.2 Disinfest — Process to eliminate harmful, threatening, or obnoxious pests, for example vermin.

3.3 Microbial Reduction Treatment — Process applied to spices and dried culinary herbs to eliminate or reduce microbial contaminants to an acceptable level.

3.4 Source Plant — Plant (non-dried) from which the spice or dried culinary herb is derived.

4 PRIMARY PRODUCTION

4.1 Environmental Hygiene

Source plants for spices and dried culinary herbs should be protected, to the extent practicable, from contamination by human, animal, domestic, industrial and agricultural wastes which may be present at levels likely to be a risk to health.

4.2 Handling, Storage and Transport

Each source plant should be harvested using a method suitable for the plant part to be harvested in order to minimize damage and the introduction of contaminants. Plant matter that is damaged or other plant waste material should be disposed of properly and removed from the growing/harvest area in order to minimize the potential for it to serve as a source of mycotoxin-producing moulds or pathogenic bacteria. If possible, only the amount that can be processed in a timely manner should be picked in order to minimize growth of mycotoxin producing moulds and pathogenic bacteria prior to processing. When the amount harvested exceeds processing capabilities, the excess should be stored under appropriate conditions.

4.2.1 *Prevention of Cross-Contamination*

Specific control methods should be implemented to minimize the risk of cross-contamination from microorganisms associated with harvesting methods. The following should be considered:

a) Where appropriate, the soil under the plant should be covered with a clean sheet of plastic or clean plant material such as straw during picking/harvesting to avoid contamination by dirt or plant matter that has fallen prior to harvesting. Plastic that will be reused should be easy to clean and disinfected. Plant material should be used only once.
b) Source plant material that has fallen to the ground should be disposed of properly if it cannot be made safe by further processing.

4.2.2 *Storage and Transport from the Growing/Harvest Area to the Packing Establishment*

Spices and dried culinary herbs should be kept in areas where contact with water or moisture is minimized. Spices and dried culinary herbs should be stored on raised platforms or hung under a non-leaking roof in a cool dry place. The storage location should prevent access, to the extent practicable, by rodents or other animals and birds and should be isolated from areas of excessive human or equipment traffic.

4.3 Drying

4.3.1 *Natural Drying*

Plants or parts of plants used for the preparation of spices and dried culinary herbs may be dried naturally, for example, air dried, provided adequate measures are taken to prevent contamination of the raw material during the process. The drying time depends on the environmental conditions surrounding the product, that is temperature, relative humidity, and air velocity.

If dried naturally, plants or parts of plants should be dried on clean, elevated racks, clean concrete floors, or clean mats or tarps or by hanging under a non-leaking roof and not on the bare ground or in direct contact with the soil. Pathways should be made in the drying area to prevent anyone from walking on the crop. The drying plant material should be raked/turned frequently to limit mould growth.

Concrete floors or slabs poured specifically for drying source plants should be subject to an appropriate cleaning program and, where appropriate, disinfected. New concrete slabs should be used for drying only when it is absolutely certain that the new concrete is well-cured and free of excess water. A suitable plastic cover spread over the entire new concrete slabs can be used as a moisture barrier; however, the sheet should be completely flat to prevent the pooling of water. Suitable precautions should be taken, where practicable, to protect the spices and dried culinary herbs from contamination and damage by domestic animals, rodents, birds, mites, insects or other objectionable substances during drying, handling and storage. If drying outdoors, drying platforms should be placed under a roof/tarp free of tears, holes or frayed material that will prevent rewetting by rainfall and contamination from birds overhead.

Drying time should be reduced as much as possible by using optimal drying conditions (for example, temperature, humidity and ventilation) to avoid fungal growth and toxin production. The thickness layer of the drying source plant material should be considered in order to consistently achieve a safe moisture level.

4.3.2 *Mechanical Drying* (*see* **6.2.1.1**)

4.4 Packing in the Growing/Harvest Area

Packing activities can occur in the growing/harvest area. Such packing operations should include the same sanitary practices, where practical, as packing spices and dried culinary herbs in establishments or modified as needed to minimize risks. To prevent germination and growth of spores, the products must be dried to a safe moisture level prior to packing.

When packing spices and dried culinary herbs in the growing/harvest area for transport, storage, or for further sale, new bags/containers should be used to prevent the potential for microbial, physical and chemical contamination. When bags/containers are marked, food-grade ink should be used to minimize the potential for contamination with ink. When bags/containers have an open structure, such as jute bags, the bag/container should not be marked when filled with spices and dried culinary herbs to prevent liquid ink from contaminating the contents and increasing the moisture in the spices and dried culinary herbs. It is recommended that paper tags be used instead of liquid ink for marking. Removal of discarded plant material should be done on a regular basis in order to avoid accumulation that would promote the presence of pests.

4.5 Cleaning, Maintenance and Personnel Hygiene

Appropriate facilities and procedures should be in place to ensure that necessary cleaning and maintenance is carried out effectively and appropriate degree of personal hygiene is maintained.

5 ESTABLISHMENT — DESIGN AND FACILITIES

5.1 Location

5.1.1 *Establishment*

Potential sources of contamination need to be considered when deciding where to locate a food establishment as well as the effectiveness of any reasonable measures that might be taken to protect food. An establishment should not be located anywhere, where, after considering such protective measures, it is clear that there will remain a threat to food safety or suitability. In particular, an establishment should normally be located away from,

a) Environmentally polluted areas and industrial activities which pose a serious threat of contaminating food;
b) Areas subject to flooding unless sufficient safeguards are provided;
c) Areas prone to infestations of pests; and
d) Areas where wastes, either solid or liquid, cannot be removed effectively.

5.2 Equipment

Equipment should be installed so as to allow access for cleaning and to minimize transfer of dust particles to other pieces of equipment or to the environment.

The risk of contamination from equipment should be assessed and controlled. Wherever possible, forklifts, utensils, and maintenance tools for the finished product and packaging areas should be different from those used in the “raw” material area (for example, prior to the microbial reduction treatment).

5.3 Premises and Rooms

Where practicable, buildings and facilities should be designed to provide separation, by partition, location or other effective means, between operations that could result in cross-contamination. They should be designed to facilitate hygienic operations according to the one-way flow direction, without backtracking, from the arrival of the raw materials at the premises to the finished product, and should provide for appropriate temperature and humidity conditions for the process and the product.

Premises and rooms should be designed with a means of dust control, since spices and dried culinary herbs are likely to generate particulate matter that can be carried to other parts of the room or premises by air currents.

5.4 Facilities for Storage

Facilities for the storage of spices and dried culinary herbs should be designed and constructed to prevent high humidity or other conditions that could result in moisture levels in product that would support the growth of moulds.

6 CONTROL OF OPERATION

6.1 Control of Food Hazards

Measures should be taken at each step in the food chain to minimize the potential for contamination of spices and dried culinary herbs by microbial pathogens (including mycotoxin-producing moulds), chemical contaminants and other contaminants not intentionally added to food such as excreta, rodent hair, and insect fragments, which may compromise food safety or suitability.

6.2 Key Aspects of Hygiene Control Systems

6.2.1 *Specific Process Steps*

6.2.1.1 *Mechanical drying*

Plants or parts of plants used for the preparation of spices and dried culinary herbs may be dried mechanically (for example, forced air drying), provided adequate measures are taken to prevent contamination of the raw material during the process. To prevent the growth of microorganisms, especially mycotoxin producing moulds, a safe moisture level should be achieved as rapidly as possible.

Mechanical drying methods should be used instead of natural (open) air drying, where possible, to limit exposure of spices and dried culinary herbs to environmental contaminants and to prevent growth of moulds. If hot air drying is used, the air should be free of contaminants and precautions should be made to prevent combustion gases from contacting the plant material or stored plant material in the area.

Drying time should be reduced as much as possible by using optimal drying conditions to avoid fungal growth and toxin production. The thickness layer of the drying source plant should be considered in order to consistently achieve a safe moisture level.

6.2.1.2 *Cleaning of spices and dried culinary herbs*

Spices and dried culinary herbs should be cleaned properly (for example, culled and sorted) to remove physical hazards (such as the presence of animal and plant debris, metal and other foreign material) through manual sorting or the use of detectors, such as metal detectors. Raw materials should be trimmed to remove any damaged, rotten or mouldy material.

Debris from culling and sorting should be periodically collected and stored away from the drying, processing and packaging areas to avoid cross-contamination and attracting pests.

6.2.1.3 *Microbial Reduction Treatments*

When necessary to reduce risk, spices and dried culinary herbs should be treated with a validated microbial reduction treatment prior to reaching the consumer in order to inactivate pathogens such as *Salmonella*. Commonly used methods involve the application of steam, fumigation or radiation. Factors that should be controlled when using steam include exposure time and temperature. The process should ensure that all of the product achieves the desired temperature for the full length of time required. A drying step may be necessary to remove added moisture.

Factors that should be controlled when using irradiation include radiation dose and the size and shape of the package, as well as the penetrability of the packaging material to the type of radiation used. The process should ensure that all of the product is exposed to the minimum dose of radiation needed to provide the intended effect.

Factors that should be controlled when using fumigation treatments such as ethylene oxide or propylene oxide include product initial temperature, chamber temperature, chemical concentration, exposure time, vacuum and/or pressure, density of the product, and gas permeability of the packaging material. The process should ensure that all product is directly exposed to the gas for the full length of time required.

For pathogen inactivation treatments the adequacy of the selected control measure (thermal or non-thermal) and associated critical limits for processing should be determined, considering the increased heat resistance reported for *Salmonella* at low water activities and the increased resistance of spores to most microbial reduction treatments.

6.2.2 *Microbiological and Other Specifications*

For general recommendations, IS 2491 may be referred. When tested by appropriate methods of sampling and examination, the products should:

a) Be free from pathogenic and toxigenic microorganisms in levels that may present a risk to health; and should comply with the provisions for food additives;
b) Not contain any substances originating from microorganisms, particularly mycotoxins, in amounts that exceed the tolerances or criteria established by the regulatory authority;
c) Not contain levels of insect, bird or rodent contamination that indicate that spices and dried culinary herbs have been prepared, packed or held under unsanitary conditions;
d) Not contain chemical residues resulting from the treatment of spices and dried culinary herbs in excess of levels established by the regulatory authority;
e) Comply with the provisions for contaminants, and with maximum levels for pesticide residues established by the regulatory authority.

6.2.3 *Microbiological Cross-Contamination*

Effective measures should be taken to prevent cross-contamination of uncontaminated spices and dried culinary herbs by direct or indirect contact with potentially contaminated material at all stages of the processing. Raw products that may present a potential hazard should be processed in separate rooms, or in areas physically separate from those where end-products are being prepared. Spices and dried culinary herbs that have undergone a microbial reduction treatment should be processed and stored separately from untreated spices and dried culinary herbs. Equipment should not be used for both treated and untreated products without adequate cleaning and disinfection before use with treated products.

6.2.4 *Physical and Chemical Contamination*

Appropriate tools and methods should be used to remove physical hazards such as pebbles or heavier stones. To separate foreign matter from the product, air tables or gravity separators can be used for particles of the same size and different density. Sieves of different mesh may be used to obtain the size required for each product and to remove foreign matter.

Regardless of the type of separator used, the following parameters should be considered; density, weight and size of particle, air speed, inclination of the sieve plate, vibration, etc for the highest effectiveness of the procedure.
Magnets/metal detectors should be used to separate ferrous and non-ferrous/metallic matter from product or detect it in the product and remove the contaminated product. For good extraction, magnets should be as close as possible to the product. Magnets work more efficiently when product flows freely. If needed, more than one magnet should be placed in the line. Magnets should be cleaned frequently. Equipment should be designed in such a way as to prevent metals extracted by magnets from being swept by the flow of product. Spices and dried culinary herbs should be arranged in a fine layer to facilitate this operation.

6.3 Incoming Material Requirements

Spices and dried culinary herbs or their source plants should not be accepted by the establishment if they are known to contain contaminants which will not be reduced to acceptable levels by normal processing procedures, sorting or preparation. Precautions should be taken to minimize the potential for contamination of the establishment and other products from incoming materials that may be contaminated. Plants, parts of plants, spices and dried culinary herbs suspected of being contaminated with animal or human faecal material should be rejected for human consumption. Special precautions should be taken to reject spices and dried culinary herbs showing signs of pest damage or mould growth because of the potential for them to contain mycotoxins such as aflatoxins. Raw materials should be inspected and sorted prior to processing (foreign matter, odour and appearance, visible mould contamination).

6.4 Packaging

Non-porous bags/containers should be used to protect the spices and dried culinary herbs from contamination and the introduction of moisture, insects and rodents. In particular, the reabsorption of ambient moisture should be prevented. Contamination should be prevented by the use of liners where appropriate. It is recommended that new bags or containers be used for food contact packaging. If reusable bags/containers are used, they should be properly cleaned and disinfected before use. All bags/containers should be in good condition and particular attention paid to the potential for loose bag fibres that can become potential contaminants. Secondary containment bags/containers providing additional protection can be reused but should not have been previously used to hold non-food materials such as chemicals or animal feed.

Spices and dried culinary herbs, for example, dried chilli peppers, should not be sprayed with water to prevent breakage during packing. This may result in growth of moulds and microbial pathogens, if present.

Finished products may be packed in gas tight containers preferably under inert gases like nitrogen or under vacuum in order to retard possible mould growth.

6.5 Documentation and Records

Where necessary, appropriate records of processing, production and distribution should be kept and retained for a period that exceeds the shelf-life of the product. Documentation can enhance the credibility and effectiveness of the food safety control system.

6.6 Recall Procedures

Records should identify the source (or lot number) of incoming raw materials and link the source or lot to the lots of outgoing products to facilitate traceability/product tracing. Managers should ensure that effective procedures are in place to deal with any food safety hazard and to enable the complete, rapid recall of any implicated lot of the finished food from the market. Where a product has been withdrawn because of an immediate health hazard, other products which are produced under similar conditions and which may present a similar hazard to public health, should be evaluated for safety and may need to be withdrawn. The need for public warnings should be considered.

6.6.1 Recalled products should be held under supervision until they are destroyed, used for purposes other than human consumption, determined to be safe for human consumption, or reprocessed in a manner to ensure their safety.

7 ESTABLISHMENT — MAINTENANCE AND SANITATION

7.1 Cleaning Programmes

A cleaning and disinfection schedule should be established to ensure that all areas of the establishment are appropriately cleaned and that special attention is given to critical areas including equipment and materials. The air handling system should be included in the cleaning and disinfection schedule. The cleaning and disinfection schedule should describe whether to use wet or dry cleaning.

The presence of water in the dry processing environment can result from improper use of water during cleaning.

Dry cleaning is the preferred means of cleaning establishments handling spices and dried culinary herbs, since the use of water can enhance the probability of contamination from pathogens such as *Salmonella*. Dry cleaning should collect, remove and dispose of residues without redistributing them or cross-contaminating the environment.

Dry cleaning is especially important in older establishments in which, in spite of regular maintenance, there may be a potential for the presence of cracks or other harbourage sites that may be difficult to eliminate. Even if residues of spices and dried culinary herbs enter such a site, potential problems can be minimized if the residues and the sites are dry and kept dry. Once water enters the harbourage site, microbial growth can occur and the potential risk of contamination to the environment and eventually to the product is increased.

Wet cleaning may be appropriate in certain circumstances, for example, when *Salmonella* has been detected in the environment. Wet cleaning should be followed by disinfection with preferably an alcohol-based disinfectant that will rapidly evaporate after contact. Suitable, alternative disinfectants that are not alcohol-based may be used where appropriate. Wet cleaning should be followed by thorough drying.

7.2 Pest Control Systems

Drains should be trapped or otherwise equipped with appropriate means to prevent entry of pests from drainage systems.

7.3 Waste Management

Suitable provisions shall be made for the removal and storage of waste. Waste shall not be allowed to accumulate in product handling, storage, and other working areas and the adjoining environment except so far as is unavoidable for proper functioning of the business. Waste stores shall be kept appropriately clean. Care should be taken to prevent access to waste by pests.

7.4 Monitoring Effectiveness

Verification of hygienic control measures should include an environmental monitoring program that has been designed to identify pathogens such as *Salmonella* in the processing areas.

8 ESTABLISHMENT — PERSONAL HYGIENE

8.1 Health Status

Periodical medical examination of a food handler should be carried out.

8.1.1 People known, or suspected, to be suffering from, or to be a carrier of a disease or illness likely to be transmitted through food, should not be allowed to enter any food handling area, if there is a likelihood of their contaminating food. Any person so affected should immediately report illness or symptoms of illness to the management.

8.1.2 If clinically or epidemiologically indicated and immunization records maintained to ensure complete immunization for communicable diseases.

8.1.3 Conditions which should be reported to management so that any need for medical examination and/or possible exclusion from food handling can be considered, include jaundice, diarrhoea, vomiting, fever, sore throat with fever, visibly infected skin lesions (boils, cuts, etc) and discharges from the ear, eye or nose and respiratory tract illness.

8.2 Personal Cleanliness

8.2.1 Food handlers should maintain a high degree of personal cleanliness, and where appropriate, wear suitable protective clothing, head covering, and footwear. Cuts and wounds, where personnel are permitted to continue working, should be covered by suitable waterproof dressings.

8.2.2 Personnel should always wash their hands when personal cleanliness may effect food safety, for example:

a) At the start of food handling activities;
b) Immediately after using the toilet; and
c) After handling raw food or any contaminated material, where this could result in contamination of other food items.

8.2.3 Personnel should avoid handling ready to eat food, where appropriate.

8.3 Personal Behaviour

8.3.1 People engaged in food handling activities should refrain from behaviour which could result in contamination of food, for example, smoking, spitting, chewing or eating, and sneezing or coughing over unprotected food.

8.3.2 Personal effects, such as jewellery, bangles, watches, pins or other items should not be worn or brought into food handling areas, if they pose a threat to the safety and suitability of food.

8.4 Visitors

Visitors to food manufacturing, processing or handling areas should, where appropriate, wear protective clothing and adhere to the other personal hygiene provisions.

9 TRANSPORTATION

Bulk transport of spices and dried culinary herbs, such as by ship or rail, should be well ventilated with dry air to prevent moisture condensation, for example, resulting from respiration and when the vehicle moves from a warmer to a cooler region or from day to night. Prior to bulk transport, the products must be dried to a safe moisture level to prevent the growth of moulds and pathogenic bacteria.

9.1 General

Spices and dried culinary herbs should be stored and transported under conditions that maintain the integrity of the container and the product within it. Vehicles should be clean, dry, and free from infestation. Spices and dried culinary herbs should be loaded, transported, and unloaded in a manner that protects them from any damage, contamination or water. Care should be taken to prevent condensation when unloading spices and dried culinary herbs from a refrigerated vehicle or while taking out of a cold storage. In warm, humid weather, the products should be allowed to reach ambient temperature before exposure to external conditions. Spices and dried culinary herbs that have been spilled are vulnerable to contamination and should not be used as food.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Spices and Condiments Sectional Committee, FAD 09

Organization	*Representative*(*s*)
Spices Board India, Kochi	Dr A.B. Rema Shree **(*Chairperson*)**
AB Mauri India Private Limited, Kochi	Shri Prakash Namboodiri
All India Spices Exporters Forum, Cochin	Shri Cherian Xavier Ms Priyamvada Nilayangod (*Alternate*)
CSIR - Central Food Technological Research Institute, Mysore	Dr M. Madhava Naidu Shri Nagarajan S. (*Alternate*)
CSIR - National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram	Dr Raghu K. G.
Confederation of Indian Industry, New Delhi	Ms Neha Aggarwal Shri Kannan B. (*Alternate*)
Consumer Coordination Council, Noida	Shri Ramji Bhai Mavani
Defence Food Research Laboratory, Mysore	Dr K. R. Anilakumar Shri Dev Kumar Yadav (*Alternate*)
Directorate of Arecanut and Spices Development, Calicut	Dr Homey Cheriyan Dr Femina (*Alternate*)
Directorate of Marketing and Inspection, Faridabad	Shivnandan Deputy Agricultural Marketing Adviser Shri Rahul Singh (*Alternate*)
Export Inspection Council of India, New Delhi	Shri Wasi Asghar Shri Shashi Prakash Tripathi (*Alternate*)
Food Safety and Standards Authority of India, New Delhi	Advisor
ICAR - Indian Institute of Spices Research, Kozhikode	Dr N. K. Leela Dr E. Jayashree (*Alternate*)
ICMR - National Institute of Nutrition, Hyderabad	Dr S. Sreenivasa Reddy Dr Paras Sharma (*Alternate*)
Kerala Agricultural University, Thrissur	Dr Saji Gomez Dr Seeja Thomachan Panjikkaran (*Alternate*)

Organization	*Representative(s)*
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BIS Directorate General	SHRIMATI SUNEETI TOTEJA, SCIENTIST 'E'/DIRECTOR AND HEAD (FOOD AND AGRICULTURE) [REPRESENTING DIRECTOR GENERAL(*Ex- officio*)]

Member Secretary
SHRIMATI NAVITA YADAV
SCIENTIST 'D'/JOINT DIRECTOR
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(*Continued from second cover*)

This standard was originally published in 1994 by deriving assistance from draft on 'Hygienic practices for spices and condiments' (CAC/RCP 42 - 1995) by Codex Alimentarius Commission. This first revision of Indian Standard has been undertaken as the codex publication CAC/RCP 42 has been withdrawn by Codex and in its place a new guideline is in force, CXC 75-2015 'Code of hygienic practice for low moisture foods'. The Codex publication has a specific annex III given for spices and condiments and while drafting this first revision, considerable assistance has been drawn from CXC 75-2015.

The composition of the technical committee responsible for formulation of this standard listed in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed, or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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This Indian Standard has been developed from Doc No.: FAD 09 (19647).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi